Synthesis of the Indole Alkaloid Elaeocarpidine

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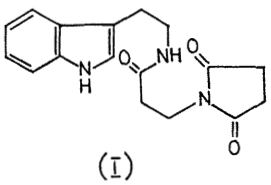
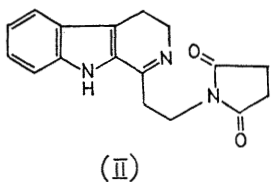
Summary A simple synthesis of the unusual pentacyclic indole alkaloid elaeocarpidine in three stages from tryptamine is reported.

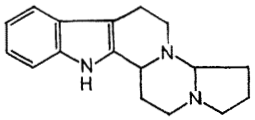
THE isolation and structure determination of elaeocarpidine (III) has recently been reported.[1] We have synthesised the alkaloid and its dihydro-derivative as follows. Reaction of tryptamine with 3,*N*-succinimidopropionic acid[2] with ethyl chloroformate gave the amide (I) which with phosphorus oxychloride gave the dihydrocarboline (II). This with lithium aluminium hydride in tetrahydrofuran gave directly a mixture of elaeocarpidine (III) and dihydroelaeocarpidine (IV) readily separated on an alumina column. The synthetic materials were identical in all respects with specimens kindly supplied by Dr. J. A. Lamberton.



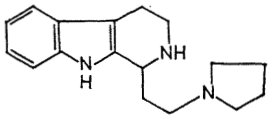
(I)



(II)



(III)



(IV)

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[1] S. R. Johns, J. A. Lamberton, and A. A. Sioumis, *Chem. Comm.*, 1968, 410.
[2] T. L. Gresham, F. W. Shaver, M. R. Frederick, F. T. Fiedovek, A. A. Bankert, J. T. Gregory, and W. L. Beears, *J. Amer. Chem. Soc.*, 1952, **74**, 1323.